

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Applicant's or agent's file reference 1-1144 | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, Item 5 below. | |
| International application No. PCT/EP 01/09727 | International filing date (day/month/year) 23/08/2001 | (Earliest) Priority Date (day/month/year) 01/09/2000 |
| Applicant BOEHRINGER INGELHEIM PHARMA KG | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/09727

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 G01N33/50 G01N33/566 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 G01N C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X Y | <p>WO 00 31261 A (CADUS PHARMACEUTICAL CORP) 2 June 2000 (2000-06-02)</p> <p>abstract page 47, line 6 -page 48, line 6 page 73, line 7 -page 74, line 10 claims 1,18,41,62,83,103,123,152,171</p> <p>--- -/--</p> | <p>1-4, 8, 9, 24-28, 30-43 5, 12-15, 17, 18, 21-23, 29, 56, 59-61</p> |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

12 November 2001

Date of mailing of the international search report

03/12/2001

Name and mailing address of the ISA
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Authorized officer

Stricker, J-E

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/09727

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | WO 00 06729 A (SLOAN KETTERING INST CANCER) 10 February 2000 (2000-02-10) | 1-3,6,7, 24,25, 30,31, 34,35, 38-41 5,29 |
| Y | page 5, line 1 - line 23 page 19, line 25 -page 20, line 6 page 23, line 26 -page 24, line 2 page 25, line 25 -page 26, line 30 claims 1-13,38 | |
| X | VEILLETTE ANDRE ET AL: "High expression of inhibitory receptor SHPS-1 and its association with protein-tyrosine phosphatase SHP-1 in macrophages." JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 273, no. 35, 28 August 1998 (1998-08-28), pages 22719-22728, XP002117548 ISSN: 0021-9258 abstract page 22722, column 2, line 11 -page 22723, column 2, line 6 figures 4,5,7 | 10,11,16 |
| Y | US 5 639 593 A (KRIEGLER MICHAEL ET AL) 17 June 1997 (1997-06-17) column 1, line 53 - line 61 column 8, line 33 - line 57 | 5,29 |
| Y | DATABASE BIOSIS 'Online! BIOSCIENCES INFORMATION SERVICE, PHILADELPHIA, PA, US; 1982 DANIELE R P ET AL: "DEMONSTRATION OF A FORMYL PEPTIDE RECEPTOR ON LUNG MACROPHAGES CORRELATION OF BINDING PROPERTIES WITH CHEMO TAXIS AND RELEASE OF SUPER OXIDE ANION" Database accession no. PREV198376041827 XP002182560 abstract & AMERICAN REVIEW OF RESPIRATORY DISEASE, vol. 126, no. 2, 1982, pages 274-280, ISSN: 0003-0805 | 12-15, 17,18, 21-23, 56,59-61 |

International Application No. PCT/EP 01 09727

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1-6, 10-15, 19-24, 28, 30-61 (partially)

Present claims 1-6, 10-15, 19-24, 28, 30, 34, 38-40, 44, 45, 49, 53-58 relate to an extremely large number of possible ILM receptors. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found (p.3, 1.30-39), however, for only a reduced number of receptors. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the receptors FPRL-1, HM74, AICL, ILT1, SHPS, KDEL and CSF-1.

Present claims 30-61 relate to a substance and its use defined by reference to a desirable characteristic or property, namely an activator or inhibitor of an ILM receptor.

The claims cover all substances having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such substances. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the substances by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to MMK-1, PMA, smoke, LPS, Lipoxin A4, W-peptide, MCP-1.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 01/09727**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 49-61 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☒ Claims Nos.: 1-6, 10-15, 19-24, 28, 30-61 (partially)
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet (1)) (July 1998)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 01/09727

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date | |
|-------------------------------------------|---|---------------------|----------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| WO 0031261 | A | 02-06-2000 | AU WO | 2030000 A 0031261 A2 | 13-06-2000 02-06-2000 |
| WO 0006729 | A | 10-02-2000 | US AU EP WO | 6160088 A 5324599 A 1100906 A1 0006729 A1 | 12-12-2000 21-02-2000 23-05-2001 10-02-2000 |
| US 5639593 | A | 17-06-1997 | US US AT AU DE EP WO | 5545518 A 5422425 A 197646 T 8337291 A 69132470 D1 0592423 A1 9202822 A1 | 13-08-1996 06-06-1995 15-12-2000 02-03-1992 21-12-2000 20-04-1994 20-02-1992 |